Inventory

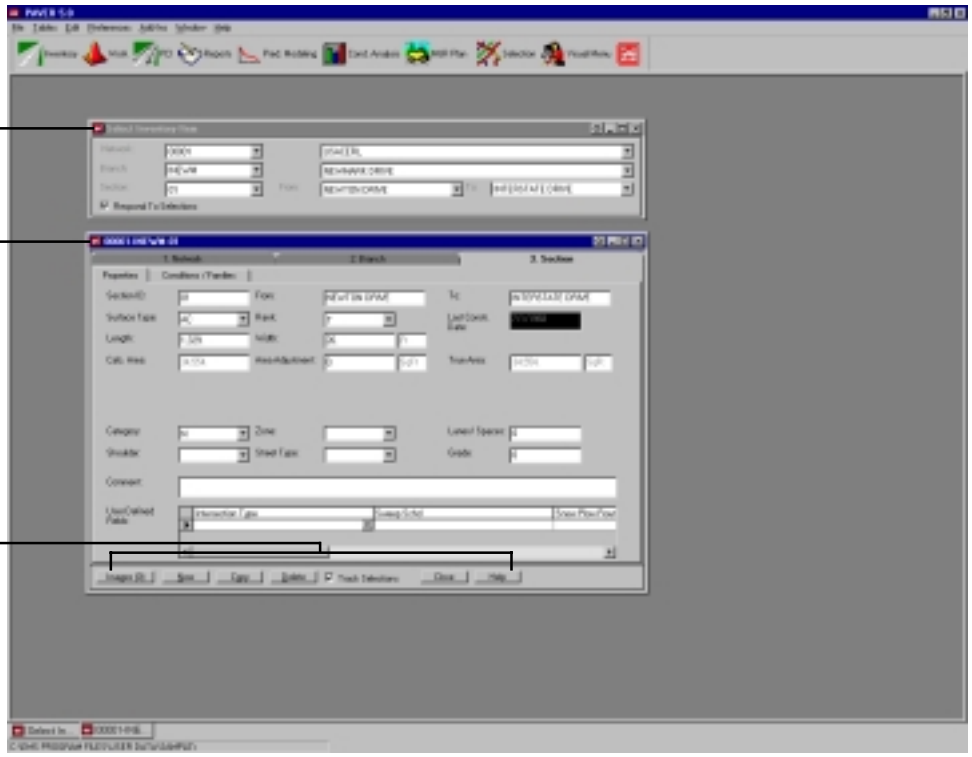
Definition

Managing Pavement Inventory - Basic Operations

The **Inventory** button provides tools to view, edit, and define pavement networks. Clicking on the **Inventory** button opens two windows.

The **Select Inventory Item** window is a series of drop-down boxes that allow you to navigate to a specific point in the inventory. Select the particular inventory item by working down the hierarchy of the database, from network to branch, then to section. At each level, you can select an item via **ID** or **Name**.

The larger window is the inventory data window. In this window, you can edit inventory data. To access data for a particular level, click the tab for **Network**, **Branch** or **Section**. In order to change the displayed inventory item, locate the item in the **Select Inventory Item** window. The inventory data window updates itself accordingly.



At the bottom of the inventory data card, there is a check box for **Track Selection**. If this box is not checked, the inventory data card will not change when a new inventory item is chosen in the **Select Inventory Item** window.

You may move to different fields on the inventory data form by clicking on the field you wish to edit in order to enter information. You may also move from field to field on the form by pressing the tab key. Each press of the tab key shifts the selected filed once to the right. Once the end of a row has been reached, a press of the tab key shifts the selected field down one row to the furthest left field.

Data fields in PAVER 5.0 only accept entries of a determined type of characters. For example, a distance field can contain only numeric information. If you try to enter non-numeric characters into a distance field, the program will not accept your entry.

Note

To view data for a specific network, it must be chosen in one of the **Inventory Item Selectors**.

Each of the inventory cards (**Network**, **Branch**, and **Section**) have six buttons along the bottom of the form. The **New** button is for adding new inventory items. The **Copy** button is used to create a new network, branch, or section identical to the selected network, branch, or section except that the **Network**, **Branch** or **Section ID** will include the characters "CC" to indicate that it is a copy. None of the copied network's children (branches and sections) are copied when a network is copied. Likewise, when a branch is copied, none of its sections are copied.

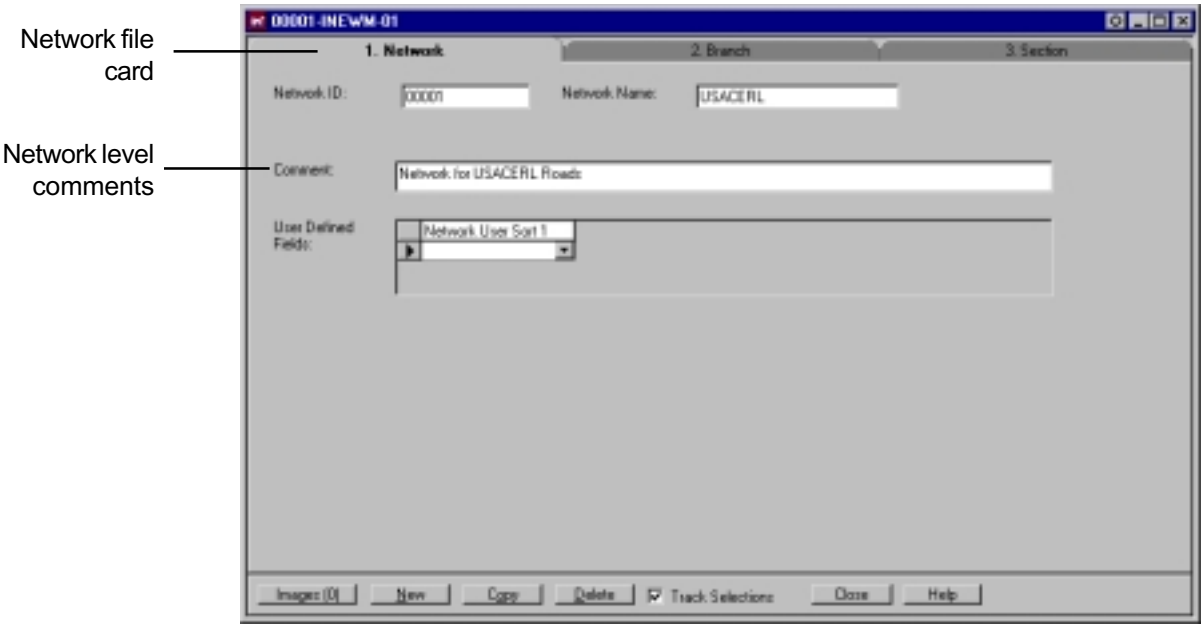
Clicking the **Delete** button deletes the selected network. The **Help** button starts the PAVER help system. **Pictures** launches the **EMS Image Viewer**. For more instructions on the use of this, please see **EMS Image Viewer**. The **Close** button closes the Inventory program.

You may also assign values for the user defined fields. This can be done only when the parameters for the user defined fields have been established (See **System Tables-Define User Fields**). Once this is done, the inventory can be sorted based on user defined criteria for many applications in PAVER.

Creating a Network

The first step in building a pavement inventory for a military installation, city, or airport is to create a network. A hierarchical structure exists for pavement inventory items in PAVER 5.0. Networks are the parents of branches, and in turn branches are the parents of sections. In order to create pavement branches and sections, you must first create a network.

To create a network, click on the **Inventory** button on the PAVER button bar. The inventory data form appears with the **Network** file card displayed. Click the **New** button at the bottom of the Network file card, which populates all fields identifying the current network. The fields on the network form for **Network ID**, **Name**, and **Comments** should be edited to the desired values. You may also enter data in any **User Defined Fields** that you have created. See the above section on how to use the functions located at the bottom of the inventory file cards.



Creating Branches

To create a branch, click the **Inventory** button on the PAVER button bar. The inventory data window appears with the **Network** file card displayed. Click the file card tab **2. Branch** for access to the Branch file card. If you have just added a new network, that network will have no branches defined. Click the **New** button at the bottom of the file card to enter a new branch. The fields on the branch data entry form becomes populated with the label "new" or is blank (depending on the type of field, i.e., text, numeric, or pick list). Enter the appropriate values. Some fields are locked. They automatically respond to section data once sections for the branch are created. For more specific information on how to use the functions located at the bottom of the **Branch** card, see the section on **Managing Pavement Inventory**.

Note

You may add items to the **Use** pick list under **Define User Fields** in **System Tables** if the choices are not adequate.

The contents of the **Use** field are limited to a single value that is selected from a preexisting list of choices. To enter a value in the **Use** field, select the field. A down arrow appears on the right side of the field data entry area. Click once on the arrow and a list of available choices appears in a scrolling pick list. Select an item from the list by pointing to the item with the mouse and pressing the left mouse button.

If there are more items in the list than can be shown in a single short list (usually 5 to 10 items), the list is displayed with a scroll bar arranged along the right side of the list. To select an item not visible in the list, point to the scroll bar down arrow with the mouse and press the left mouse button. The list scrolls down. To scroll back up the list, point to the up arrow on the scroll bar and press the left mouse button. When the pick list is very long, you may want to locate items in the list by typing the first character of your selection. The program seeks out matches for the characters you type. To use the seek feature, select the pick list field you wish to edit and type the first character of the selection you want and the pick list moves to the characters you type.

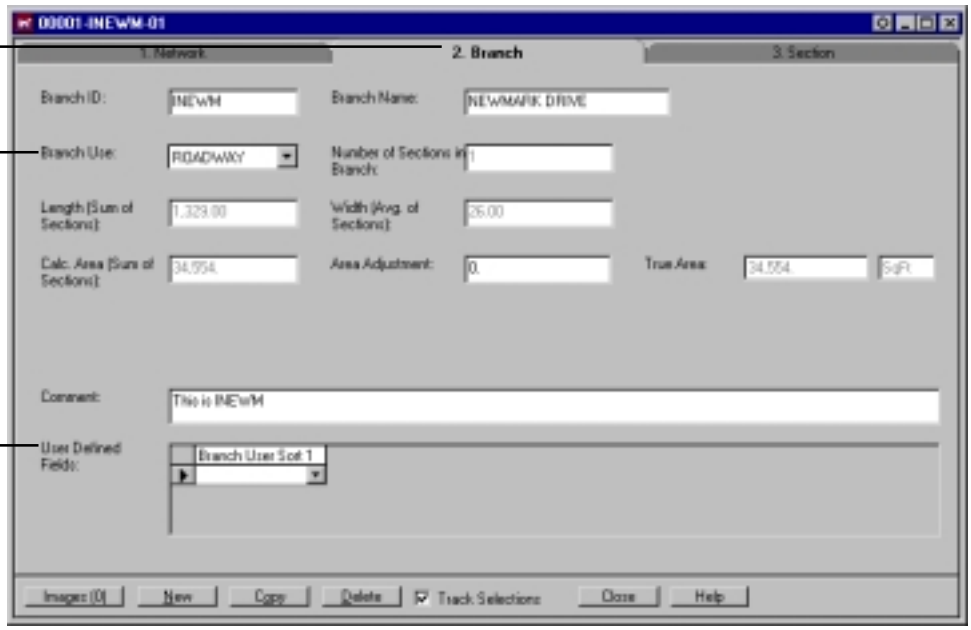
If the pick list does not contain the item you wish to enter, you need to add the item to the pick list. To enter a new item to the **Use** pick list, select **Tables** from the PAVER Menu located along the top of the PAVER screen. From the **Tables** sub-menu, select the **Inventory Pick List** selection and then the **Branch Use** tab. See the **System Tables** section under **Inventory Pick Lists** for further instructions.

The **Branch** file card contains three area fields: **Sum of Sect. True Area**, **Area Adjustment**, and **True Area**. The **Sum of Sect. True Area** field is the sum of true section areas of the branch. The **Area Adjustment** field is used to reflect special knowledge you have about branch area that is not incorporated in the **Sum of Sect. True Area**. Decreases in branch area should be entered as negative values. Note that the **Section** card also has an area adjustment field **(Section Area Adjustment)** so you do not need to reflect section level area adjustments in the branch **Area Adjustment** field. **True Area** is **Sum of Sect. True Area** plus **Area Adjustment**. **True Area** is the value used in PAVER calculations and reports.

Branch file card

You may create your own branch uses if **Use** options are not adequate

These fields may be configured by the user



Creating Sections

To create a section, click on the **Inventory** button on the PAVER button bar. The inventory data form appears with the **Network** file card as the active form. Click the file card tab **3. Section** to make the **Section** data card the active form. If you have just added a new branch, that branch will have no sections defined.

Click the **New** button at the bottom of the screen to enter a section. Enter section information in the rows of fields starting with **Section ID**. The **Calculated Area** is calculated based on the **Length** and **Width** information you enter. The **Calculated Area** field cannot be edited. The **True Area** field defaults to the value in the **Calculated Area** field. However, this value can be adjusted to reflect cut outs or other adjustments affecting the actual section area in the **Area Adjustment** field. Although the **Area Adjustment** field is useful for irregularly shaped sections, you must still enter **Length** and **Width** information. Failure to do so will create problems in other functions of PAVER.

The **Unit** field cannot be directly edited by the user (see **System Tables** section under **Misc. Other Tables/ Unit of Measure (Field) Settings** on page for details).

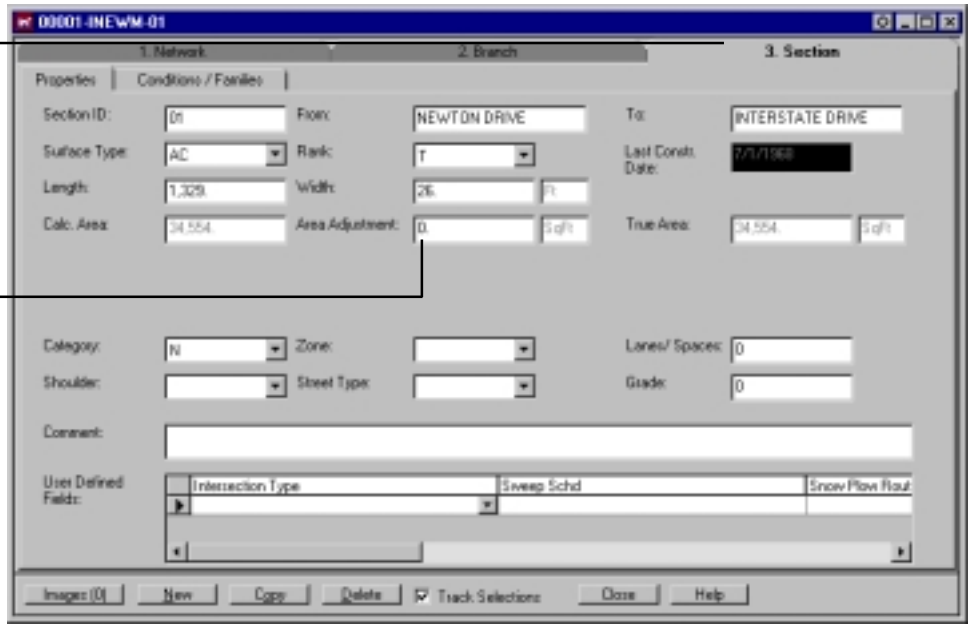
Some of the section fields can only be changed using the choices in the pick lists. Pick list choices can be edited or expanded through the **Tables** button above the PAVER button bar. (See **System Tables** section under **Inventory Pick Lists** on page 41 for further directions.) After the basic section information, there are two boxes, **Conditions** and **Families**. Condition information cannot be edited from the **Section** file card. Condition information can be entered in the routines run from the **Field Inspect** button on the PAVER button bar. The family assignment for the section (or other sections) can be changed by using the mouse to point at the **Family** box and double clicking the left mouse button. Family information can also be assigned under the **Pred. Model** button.

The **Section** file card contains three area fields, **Calc** (Calculated) **Area**, **Area Adjustment**, and **True Area**. The **Calc Area** field is the product of the section's length times width. The section **Area Adjustment** field is used to reflect special knowledge you have about section area that is not incorporated in the area calculation. Decreases in section area resulting from items like cut outs should be entered as negative values. Note that the **Branch** file card also has an area adjustment field (**Area Adjustment**) so you do not need to reflect Branch level area adjustments in the section **Area Adjustment** field. **Calc Area** and **Area Adjustment** are added to obtain **True Area**. **True Area** is the value used in PAVER calculations and reports.

Three user defined section fields are arranged along the bottom of the screen. These fields are used to contain user defined inventory information and can be used to sort and select inventory, maintenance, and inspection information.

Section file card

Use **Area Adjustment** to reflect cut outs



Conditions/Families

This tab provides a quick reference to condition and family assignment data for the selected section in four preset views:

• **View all latest conditions** – This produces a table with the latest (last computed or last entered) condition indices associated with this section.

• **View one condition index for all dates** – This shows every date that one selected index occurred for the current section. A drop down-box allows you to choose the condition for which you would like to display information.

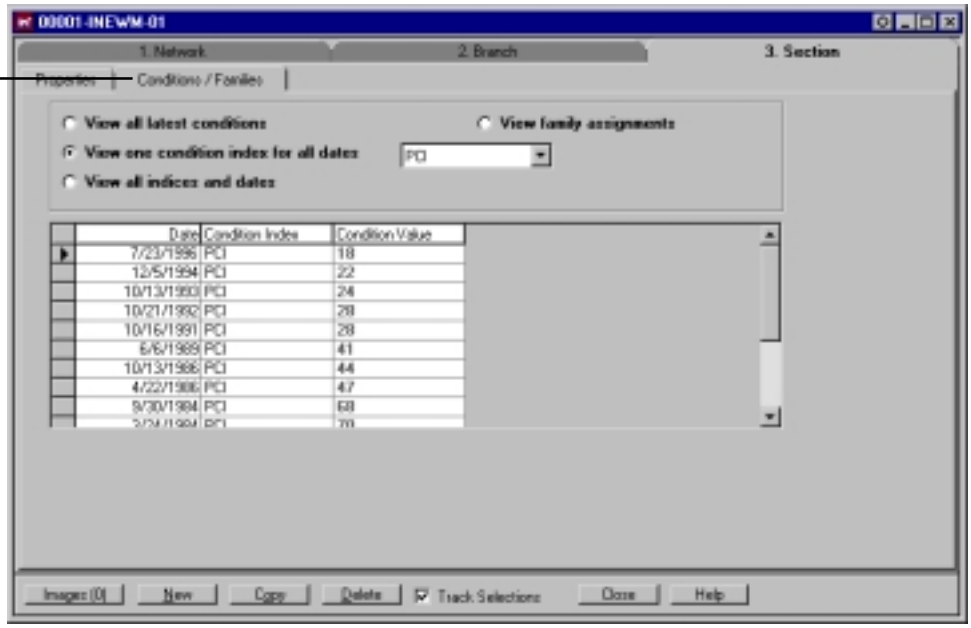
• **View all indices and dates** – This is the complete listing of every condition index for every date occurrence listed in the section history.

• **View family assignments** – This shows what the current family assignment (Prediction Model) is for the selected section. Double clicking in the **Family** column opens the **Change Family Assignments** window, providing you the option to change the family assignment.

As with other tables in PAVER, right clicking on any of these tables will allow you to revise the table layout, sort the data, print, or export the data.

Condition and Age Categories, Condition Type Selection, and **User-Defined Distress Indices** are all discussed in **System tables** under **Condition Types.**

View the conditions and family assignments for a section



Note

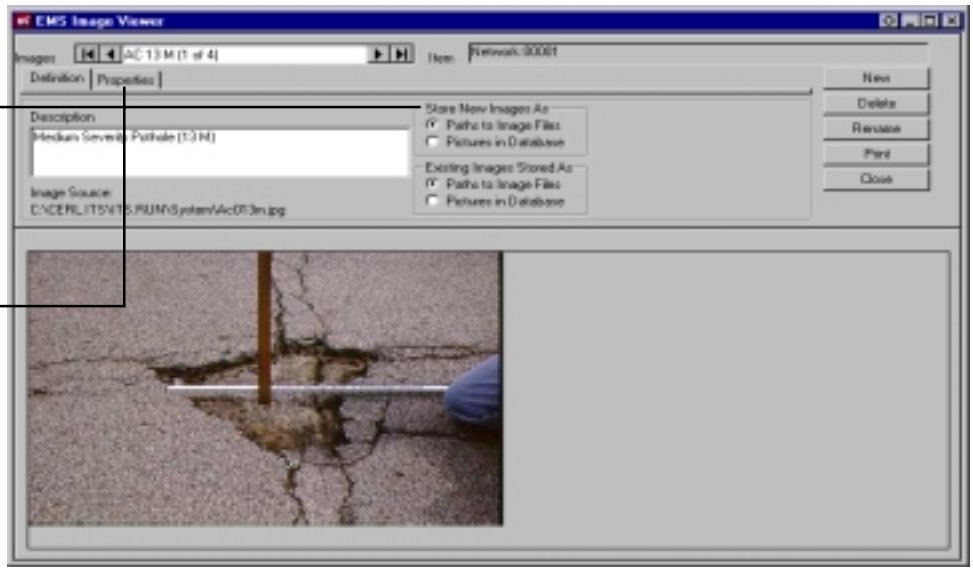
The **Conditions/Families** tab provides a quick way to see the conditions associated with all construction and inspection dates.

EMS Image Viewer

Note

Use the **EMS Image Viewer** to store relevant pictures such as distresses or individual sections.

The **EMS Image Viewer** manages the saving, recalling, viewing, and enhancing of pictures, drawings, and other stored images in the PAVER program. **The EMS Image Viewer** is accessed from the **Inventory** section of PAVER 5.0. The network, branch, and section cards of the **Inventory** program each have a button located along the bottom of the form labeled **Images**. In order to edit pictures for a specific network, branch or section, the item must be actively displayed in the inventory data window at this time. To open the **EMS Image Viewer**, click on the **Images button**.



Store an Image

In the **EMS Image Viewer** window, there is a box titled **Store New Images As**. The options offered for storage are **Paths to Image Files** or **Pictures in Database**. Since image files are typically large, including them in the database substantially increases the size of a database. An alternative is to attach the picture to the database through a "path" to the image. The image would be stored in a fixed location, and PAVER would simply set up a path link to the image. However, an image stored as a path will not be included in the e50 file when the e50 is created for storage or transfer. In order for the images to follow the database, you will need to copy and send the images separately, making sure to place them in the same path on the new machine as they were in on the original. Select appropriate storage option and click on the **New** button. You are prompted to select the file containing the picture you wish to load. The drop box at the bottom of the window is used to specify the format for the picture. PAVER supports images stored in JPG, TIF, GIF, BMP, TGA, PCX, and PCT formats. Once you have selected the image file to add, use your mouse to click the **Open** button. The image appears in the **EMS Image Viewer** window.

If you wish to change the storage option for an image later, select the image and change the selection in the box tilted **Existing Images Stored As**.

Viewing Images

To view and select an image from the list of saved images, use the scrolling tool at the top of the window. If you add only one image for an inventory item, it always appears in the in **EMS Image Viewer** window when you access the **EMS Image Viewer** for that inventory item. However, you may associate more than one image with an inventory item. When multiple inventory images are associated with an inventory item, you can scroll through the images by clicking the image scroll buttons located on the upper left corner of the **EMS Image Viewer** window.

Edit an Image

There are two tabs in the **EMS Image Viewer** window, **Definition** and **Properties**. Clicking on the **Definition** tab allows you to view the selected image and to determine how the image is stored. Clicking on the **Properties** tab will allow you to make various graphic adjustments to the image as well as add a variety of special effects. Click on **Edit** for the desired feature and click on OK once you have made your adjustments. A preview of the image will be shown in the **EMS Image Viewer** window. Save changes by clicking on **Save Edits** or restore the original image if the change is undesirable by clicking on **Restore Image**.

Other Image File Options

Five other commands are available in the **EMS Image Viewer** window:

• **New** - A new image is attached to the network, branch, or section that was active when the **Image** command was invoked.

• **Delete** - The current image in the viewer is deleted.

• **Rename** - This renames the image within the viewer, but it will not change the file name.

• **Print** - This command invokes the Windows "Print" window for printing a copy of the selected image

• **Close** - This closes the **EMS Image Viewer** window.

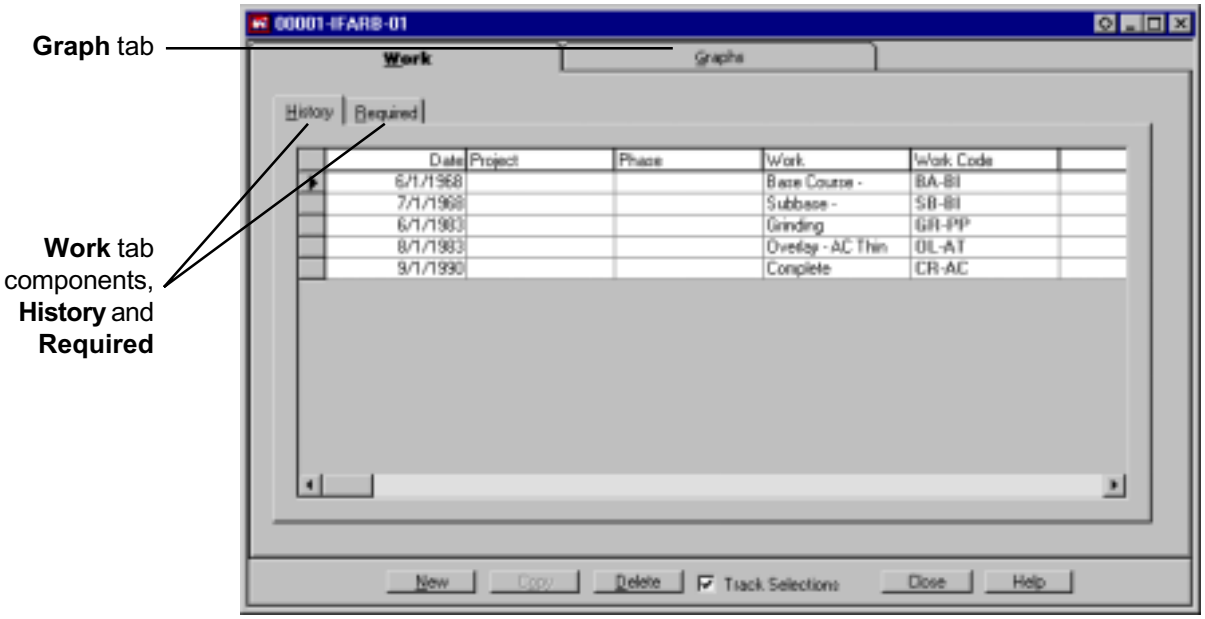
Work

Extensive connections exist in PAVER between construction date and predicted PCI. The system must have an accurate account of the last construction date for each section in order to accurately predict future pavement performance, maintenance requirements, costs, and inspection schedule. PAVER updates the last construction date for the section to correspond with the most recent major M&R. The **Work History** and **Required** forms provide an interface for easily entering work history data of a particular pavement section. In order to enter work information for a particular section, it must be selected in the **Select Inventory Item** window.

For a new record, click on **New**, then enter the information either by typing or selecting from a pick list of options. You may edit entries by typing over those in existence. Micro PAVER does not allow the user to delete ALL of the construction dates in a work history profile. If there is only one construction date, the entry cannot be removed. The **Copy** button invokes the **Copy and Move Data** utility - described in a following paragraph - and can be used to move other data elements, to compatible places in other areas of the database. In this case, work records will be copied or moved.

Maintenance, repair, and construction activity information is recorded on the **Work** file card. The **Work** table is subdivided into **History** and **Required** tables. Future or planned work is entered into the **Required** table. When the activity has been completed, scroll to the last column of the **Required** table and change the **Work Completed** field in the **Work Required** table to indicate **Yes**. This will cause the record to be transferred to the **Work History** table. If you select the **History** tab, the table refreshes and the completed work activity will then be part of the **Work History**.

The **Graphs** tab also contains a graphic component that presents graphs for each section relating condition and work history.



Traffic

This window is for entering previously collected traffic data. The **Traffic** table has a special copy feature for replicating information to multiple sections. Click the **Copy traffic to rest of branch** button to copy the information for the active traffic section to the other sections in the branch.

NDT and Test

This window contains two tabs, **NDT Tests** and **Other Tests**. These tables are for the collection of basic pavement test results.

Copy and Move Data

This new data manipulation tool included in PAVER 5.0 allows you to move or copy any available inventory item from one location to another. First, select the inventory item you wish to move or copy under **Source**. Then, select the **Destination** for the inventory item you wish to move or copy. **Move** relocates the item to the specified location, while **Copy** leaves the original in its location and place a copy in the specified destination. The **Move** and **Copy** buttons remain "grayed out" until an acceptable combination of source and destination locations are chosen. For example, you cannot move a network into a section. All data movement is restricted within the open database. To move data items between databases, you will have to combine databases using **Combine/Subset Database** described in **Database Tools**-**Combine/Subset Database** on page 29. After two databases have been combined, move or copy the data items and split the database back into its original components.

The **Copy and Move Data** utility also allows you to delete and rename items by highlighting the appropriate item and clicking **Delete** or **Rename** under the Source side. Also, you can use the **EMS Query Tool** to eliminate any data you do not want to view by selecting **Subset** from the **View** box and clicking on **Select**. The **Generate Selections** and **Respond to Selections** check boxes link the **Copy and Move** utility with the other selector tools. For all components of PAVER that use inventory items (Network, Branch, and Section), there is one active selection. Therefore, you can use the **Copy and Move** utility to **Generate selections** in other inventory selectors or the **Copy and Move** can be selected to **Respond to selections** made by another selector.